TABLE 3.—*Hydrology of Gatun Lake watershed. Dry season 1925, January to April, inclusive*

[Drainage area, 1,320 square miles]

(Gatun Lockages, 1,542; Pedro Miguel Lockages, 1,655)

Gatun Lake	Elevation	Date
Monthly mean	85.28	
Maximum	87.10	Jan. 1
Minimum	82.97	Apr. 25

	Quantities	
	Million cubic feet	Second-feet
Gatun spillway, waste	1,788.2	172.5
Gatun spillway, leakage	37.2	3.6
Gatun Locks, lockages and tests	4,868.1	469.5
Gatun Locks, leakage	95.0	9.2
Gatun hydroelectric plant	15,857.6	1,529.5
*Pedro Miguel Locks, lockages and tests	4,163.2	401.5
*Pedro Miguel Locks, leakage	54.1	5.2
*Maintaining Miraflores Lake through Pedro Miguel Locks	0.0	0.0
Pumping at Gamboa	131.2	12.7
Brazos Brook Reservoir	211.6	20.4
*Pumping at Gaillard Cut	0.0	0.0
a. Total outflow	27,206.2	2,624.1
b. Storage (+increase, −decrease)	−17,936.5	−1,730.0
c. Net yield (a±b)	9,269.7	894.1
d. Evaporation (21.987")	8,359.5	806.3
e. Total yield (c+d)	17,629.2	1,700.4
f. Rainfall on lake (9.62")	3,634.3	350.5
g. Yield from land area (e−f)	13,994.9	1,349.9
*Transferred to Miraflores Lake	4,217.3	406.7

	Mean area, square miles	Rainfall, inches	Run-off, inches	Percentage, run-off
Lake surface	163.9	9.62	9.62	100
Land area	1,156.1	8.71	5.23	60
Total watershed	1,320	8.82	5.73	65

RIVER REGULATION

[Regulation of Rivers without Embankments, as Applied in the Training Works, at the Headwaters of the Rangoon River, Burma (locally known as the Myitmaka Training Works). By F. A. Leete, assisted by G. C. Cheyne]

In Nature, June 6, 1925, Mr. Brysson Cunningham presented a very interesting review of the above publication, and below are given the essential features thereof.

The basic proposition advanced is that a river may be left to effect its own training without the use of embankments of any kind, including all artificial aids to bank formation, with the exception of sticks of bamboo. The scene of operations was among the headwaters of the Rangoon River in Burma, used mainly for the transportation of teak logs. The streams are fed from torrents from the hills with an extreme altitude of about 2,500 feet, the annual rainfall varying from 60 to 120 inches. During the monsoon season high floods occur at frequent intervals, carrying immense quantities of sand and clay in suspension. At the foot of the hills the flood waters spread out over the plain submerging the paddy fields and producing a series of swamps, with the result that the teak logs were left stranded with much resulting loss.

Formerly embankments, at first high and then low, were constructed at great cost, but in 1917 came the inspiration that no embankments at all were necessary. It had been observed that soil deposits occurred around stranded logs and other debris; therefore a trial fence of bamboo stakes was made along the desired line of embankment. The method was simple. After the proposed line of channel had been pegged out, following the natural depressions as a rule, all growth was removed to a width of 150 feet on each side of the line. One hundred feet on each side of the line, fences were made by driving into the ground pointed bamboos, 5 or 6 feet long, and about 9 inches apart, with the tops dressed to a steady slope, and about 3 feet above ground level. The stakes were lashed to a horizontal rail about 6 inches from their tops, with coir (coconut fiber) rope.

The outcome fully justified the original conception. The fences caught much small rubbish and formed a barrier checking the flow of the water. This check caused a deposit of the heavier sand particles on the streamside of the fence, while the finer particles were carried beyond it. The stakes (fence) became imbedded in the deposit, which gradually accreted to heights ranging up to 9 or 10 feet or even more. Thus natural embankments were formed and the river channel completely defined. When the first row of stakes is buried, a second row may be driven, but this is not often necessary. Finally the river bank becomes so high that the channel is large enough to carry the whole normal flood water. The forming banks serve as well to raise the level of the surrounding country, thus reclaiming considerable tracts for cultivation. Bad bends in the river are eliminated by short cuts.

The method is not one of universal application, but it is suitable in the case of streams originating as hillside torrents and heavily charged with detritus and sandy silt, chiefly in their upper reaches. Considerable variation in water level and frequent overtopping of banks in the early stages are features of the course of channel formation, and when these are lacking, the method can not be utilized, or at any rate, not so effectively.—*H. C. F.*

A CONCRETE RAIN-GAUGE SUPPORT

[Extracts from a memorandum by S. D. Flora, Weather Bureau, Topeka, Kans.]

An excellent form of support for a rain gage that will last indefinitely consists of a cement block 12 inches square into which four gas pipes were inserted before the cement had set, so that the can of the rain gauge is held firmly by them, but with enough space so that it can be lifted out. The gas pipes project 21 inches above the cement.

The block need not, of course, be exactly of the size specified above. It is a good idea in practice to bury part of it so that the bottom of the gauge is held about 3 inches above the ground. The cost of this support should not exceed $3.

METEOROLOGICAL SUMMARY FOR SOUTHERN SOUTH AMERICA, AUGUST, 1925

[Reported by Señor J. B. Navarrete, El Salto Observatory, Santiago, Chile. Translation by B. M. V.]

The month of August was relatively dry in the central zone of Chile and somewhat rainy in the south during the first 15 days. From the 2d to the 6th important atmospheric depressions crossed the southern region, causing general rains over nearly the whole of it. The maximum precipitation in 24 hours occurred on the 5th at Valdivia. On the 4th there were local rains on the high plateau of Bolivia and in the interior of Tacna Province.

On the 7th and 8th an anticyclonic center was established in the interior of the continent at latitude 40°, with a fall of temperature and fine weather.

From the 9th to the 12th there was a renewed development of atmospheric disturbances in the southern region; general rains occurred, and on the 11th heavy snowfall occurred in Magellanes Province.